

**REMARKS/ARGUMENTS**

Favorable reconsideration of this application is respectfully requested.

Claims 1-4 and 7 are pending in this application. Claims 5, 6, and 8-18 have been canceled without prejudice or disclaimer. Claim 1 has been amended to include the subject matter of canceled Claims 5, 6, and 9 as well as the subject matter shown by layer 13 of FIGS. 2A-2F, for example, and Claims 2-4 and 7 have been amended to be consistent with the changes made to Claim 1. Accordingly, it is respectfully submitted that the amendments made as to Claims 1-4 and 7 do not introduce any new matter.

The outstanding Office Action presents a rejection of Claims 1-9 under 35 U.S.C. §103(a) as being unpatentable over “BACKGROUND ART” FIGS 10-11 of this Application in view of Mishra et al (U.S. Patent No. 5,053,348, Mishra).

The outstanding rejection of Claims 5, 6, 8, and 9 under 35 U.S.C. §103(a) as being unpatentable over “BACKGROUND ART” FIGS 10-11 of this Application in view of Mishra is first noted to be moot as to canceled Claims 5, 6, 8, and 9.

To the extent that the subject matter of these canceled Claims 5, 6, 8, and 9 has been incorporated into amended Claim 1, it is noted that the outstanding Action has failed to establish a valid *prima facie* case of obviousness as it improperly relies on a bare assertion that “high melting point metal is a well-known material for use in forming gate electrode” and the unsupported conclusion that “it would have been obvious to those skilled in the art to select a suitable material and thickness for gate electrode in forming high speed device.”

The PTO reviewing court recently noted (*See In re Kotzab*, 55 USPQ2d 1313, 1316 (Fed. Cir. 2000) that:

Most if not all inventions arise from a combination of old elements. *See In re Rouffet*, 149 F.3d 1350, 1357, 47 USPQ2d 1453, 1457 (Fed. Cir.1998). Thus, every element of a claimed invention may often be found in the prior art. *See id.* However, identification in the prior art of each individual part claimed is insufficient to defeat patentability of the whole claimed invention. *See id.* Rather, to establish obviousness based on a combination of

the elements disclosed in the prior art, there must be some motivation, suggestion or teaching of the desirability of making the specific combination that was made by the applicant. *See In re Dance*, 160 F.3d 1339, 1343, 48 USPQ2d 1635, 1637 (Fed. Cir. 1998); *In re Gordon*, 733 F.2d 900, 902, 221 USPQ 1125, 1127 (Fed. Cir. 1984).

As to reliance by the PTO on unsupported conclusions that particular claimed subject matter would have been obvious to those skilled in the art, this Court also (*see In re Kahn*, 78 USPQ2d 1329, 1336 (Fed. Cir 2006)) recently noted that:

[R]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness. *See Lee*, 277 F.3d at 1343-46; *Rouffett*, 149 F.3d at 1355-59. This requirement is as much rooted in the Administrative Procedure Act, which ensures due process and non-arbitrary decisionmaking, as it is in §103. *See id.* at 1344-45.

Further note MPEP § 2144 as follows:

Explicit findings on motivation or suggestion to select the claimed invention should also be articulated in order to support a 35 U.S.C. 103 ground of rejection. . . . Conclusory statements of similarity or motivation, without any articulated rational or evidentiary support, do not constitute sufficient factual findings." Note also, *In re Lee*, 277 F.3d 1338, 1343-4, 61 USPQ2d 1430 (Fed. Cir. 2002) ("The factual inquiry whether to combine references . . . must be based on objective evidence of record. . . . [The] factual question of motivation . . . cannot be resolved on subjective belief and unknown authority. . . . Thus, the Board must not only assure that the requisite findings are made, based on evidence of record, but must also explain the reasoning by which the findings are deemed to support the agency's conclusion").

In so far as the PTO is failing to further consider the claimed thickness of the claimed "at least one high-melting-point metal layer" to be a limitation to be given patentable weight, this limitation leads to advantages disclosed at page 26, line 14-page 27, line 9, for example. there is no known provision in the statute or case law permitting such an advantage producing critical limitation to be ignored as improperly attempted in the outstanding Action.

Finally, it is noted that neither the "BACKGROUND ART" FIGS 10-11 of this Application or Mishra teach or suggest the amended Claim 1 step of "forming an AlGa<sub>N</sub> barrier layer over an insulating substrate" that is followed by the Claim 1 further recited steps of:

forming a GaN layer over the AlGa<sub>N</sub> barrier layer;  
forming an AlGa<sub>N</sub> spacer layer over the GaN layer;  
forming a Si-doped AlGa<sub>N</sub> layer over the AlGa<sub>N</sub> spacer layer;  
forming an AlGa<sub>N</sub> cap layer over the Si-containing carrier-supplying layer.

In this regard, it is well established that a *prima facie* case of obviousness requires that all claim limitations be considered and demonstrated to be taught or suggested by the prior art, see MPEP §2143.03.

In light of the above remarks, the rejection of Claim 1 under 35 U.S.C. §103(a) as being unpatentable over "BACKGROUND ART" FIGS 10-11 of this Application in view of Mishra is traversed.

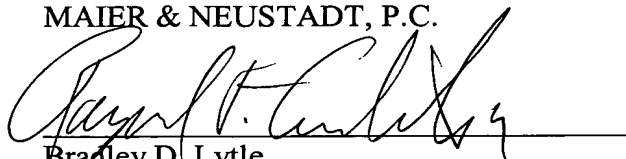
As Claims 2-4 and 7 all directly or indirectly depend from Claim 1, the rejection of these claims under 35 U.S.C. §103(a) as being unpatentable over "BACKGROUND ART" FIGS 10-11 of this Application in view of Mishra is traversed for all the reasons noted above. In addition, this rejection of Claims 2-4 and 7 is traversed because each of these claims adds further features that are not taught or suggested by "BACKGROUND ART" FIGS 10-11 of this Application in view of Mishra.

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Reply to Office Action of 05/02/2006

As no further issues are believed to remain outstanding in the present application, it is believed that this application is clearly in condition for formal allowance and an early and favorable action to that effect is, therefore, respectfully requested.

Respectfully submitted,

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